

What is claimed is:

- 1 1. A method to assemble a pre-curved bolster plate to one side of a substrate  
2 having a first side and a second side, comprising:  
3 attaching a component to an electrical contact area on said first side of said  
4 substrate; and  
5 attaching said pre-curved bolster plate on said second side of said substrate,  
6 wherein said pre-curved bolster plate is attached to said second side opposite said  
7 electrical contact area on said first side of said substrate.
- 1 2. The method of claim 1, wherein said component is a land grid array (LGA)  
2 component.
- 1 3. The method of claim 1, wherein said substrate is selected from a group of  
2 substrates consisting of: a printed circuit board (PCB), a multi-chip module (MCM),  
3 and a flexible substrate.
- 1 4. The method of claim 1, wherein said pre-curved bolster plate includes a  
2 material selected from the group consisting of: a stainless steel alloy, a powder-coated  
3 spring steel alloy, a plated spring steel alloy, a painted spring steel alloy, a titanium  
4 steel alloy, a carbon steel alloy, a magnesium alloy, and an aluminum alloy.
- 1 5. The method of claim 1, wherein said pre-curved bolster plate has a spherical  
2 curvature.
- 1 6. The method of claim 1, wherein said pre-curved bolster plate has a cylindrical  
2 curvature.
- 1 7. The method of claim 1, wherein said pre-curved bolster plate has a radius of  
2 curvature in excess of 100 inches (254 centimeters).

- 1    8.    A method to fabricate a pre-curved bolster plate, comprising:  
2        selecting a set of physical dimensions of said pre-curved bolster plate;  
3        estimating an initial radius of curvature for said pre-curved bolster plate;  
4        modeling said pre-curved bolster plate after assembly on a substrate;  
5        estimating a more precise radius of curvature for said pre-curved bolster plate  
6 after modeling said pre-curved bolster plate after assembly on said substrate;  
7        cutting said pre-curved bolster plate according to said set of physical  
8 dimensions; and  
9        stamping said pre-curved bolster plate to achieve said more precise radius of  
10 curvature.
- 1    9.    The method of claim 9, wherein said pre-curved bolster plate is fabricated from  
2 a material selected from the group of materials consisting of: a stainless steel alloy, a  
3 powder-coated spring steel alloy, a plated spring steel alloy, a painted spring steel alloy,  
4 a titanium steel alloy, a carbon steel alloy, a magnesium alloy, and an aluminum alloy.
- 1    10.   The method of claim 9, wherein said pre-curved bolster plate is stamped to  
2 achieve a spherical curvature.
- 1    11.   The method of claim 9, wherein said radius of curvature is greater than 100  
2 inches (254 centimeters).
- 1    12.   The method of claim 9, wherein said pre-curved bolster plate is stamped to  
2 achieve a cylindrical curvature.
- 1    13.   An assembled substrate, comprising  
2        a substrate having a first and a second side, and an electrical contact area on  
3 said first side;  
4        an electrical component having a plurality of leads attached to said electrical  
5 contact area of said substrate; and

6           a pre-curved bolster plate attached to said second side of said substrate opposite  
7   said electrical contact area of said substrate.

1   14.    The assembled substrate of claim 13, wherein said substrate is selected from the  
2   group of substrates consisting of: a printed circuit board (PCB), a multi-chip module  
3   (MCM), and a flexible substrate.

1   15.    The assembled substrate of claim 13, wherein said component is a land grid  
2   array (LGA) component.

1   16.    The assembled substrate of claim 13, wherein said pre-curved bolster plate is  
2   fabricated from a material selected from the group of materials consisting of: a  
3   stainless steel alloy, a powder-coated spring steel alloy, a plated spring steel alloy, a  
4   painted spring steel alloy, a titanium steel alloy, a magnesium alloy, and an aluminum  
5   alloy.

1   17.    The assembled substrate of claim 13, wherein said pre-curved bolster plate has a  
2   spherical curvature.

1   18.    The assembled substrate of claim 13, wherein said pre-curved bolster plate has a  
2   cylindrical curvature.

1   19.    The assembled substrate of claim 13, wherein said pre-curved bolster plate has a  
2   radius of curvature in excess of 100 inches (254 centimeters).

1   20.    The assembled substrate of claim 13, wherein said pre-curved bolster plate has a  
2   radius of curvature less than 100 inches (254 centimeters).